

**GEO Technical Guidance Note No. 30 (TGN 30)
New Intensity-Duration-Frequency Curves for Slope Drainage Design**

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1. **SCOPE**

- 1.1 This Technical Guidance Note (TGN) promulgates a set of new Intensity-Duration-Frequency (IDF) curves, which supersede the IDF curves given in Figure 8.2 of the Geotechnical Manual for Slopes (GCO, 1984).
- 1.2 Any feedback on this TGN should be directed to Chief Geotechnical Engineer/Standards & Testing of the GEO.

2. **TECHNICAL POLICY**

- 2.1 The technical recommendations promulgated in this TGN were agreed by GEO Geotechnical Control Conference in January 2011.

3. **RELATED DOCUMENTS**

- 3.1 GCO (1984). *Geotechnical Manual for Slopes (Second Edition)*. Geotechnical Control Office, Hong Kong, 295 p.
- 3.2 Tang, C.S.C. & Cheung, S.P.Y. (2011). *Frequency Analysis of Extreme Rainfall Values (Technical Note No. 1/2011)*. Geotechnical Engineering Office, Hong Kong, 208 p.

4. **BACKGROUND**

- 4.1 A frequency analysis of extreme rainfall intensities based on 26 years of rainfall data as recorded by 43 GEO raingauges between 1984 and 2009 has been completed. The results are presented in the report by Tang & Cheung (2011). The study has derived a set of new IDF curves that are used, *inter alia*, for slope drainage design.

5. **TECHNICAL RECOMMENDATIONS**

- 5.1 For slope drainage design, the design mean intensity of rainfall should be determined in accordance with the IDF curves given in Figure 1 of Annex TGN 30 A1.
- 5.2 The updated IDF curves shall be applicable to the design of surface drainage provisions for new slopes. For existing slope drainage provisions, there is no urgent need to review or upgrade them, except for those with obvious deficiency as observed during rainfall. Where an existing slope is to be upgraded or improved, the opportunity should be taken to review the adequacy of the prevailing drainage provisions using the new IDF curves.

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- 6. ANNEX
- 6.1 TGN 30 A1 – New Intensity-Duration-Frequency (IDF) Curves

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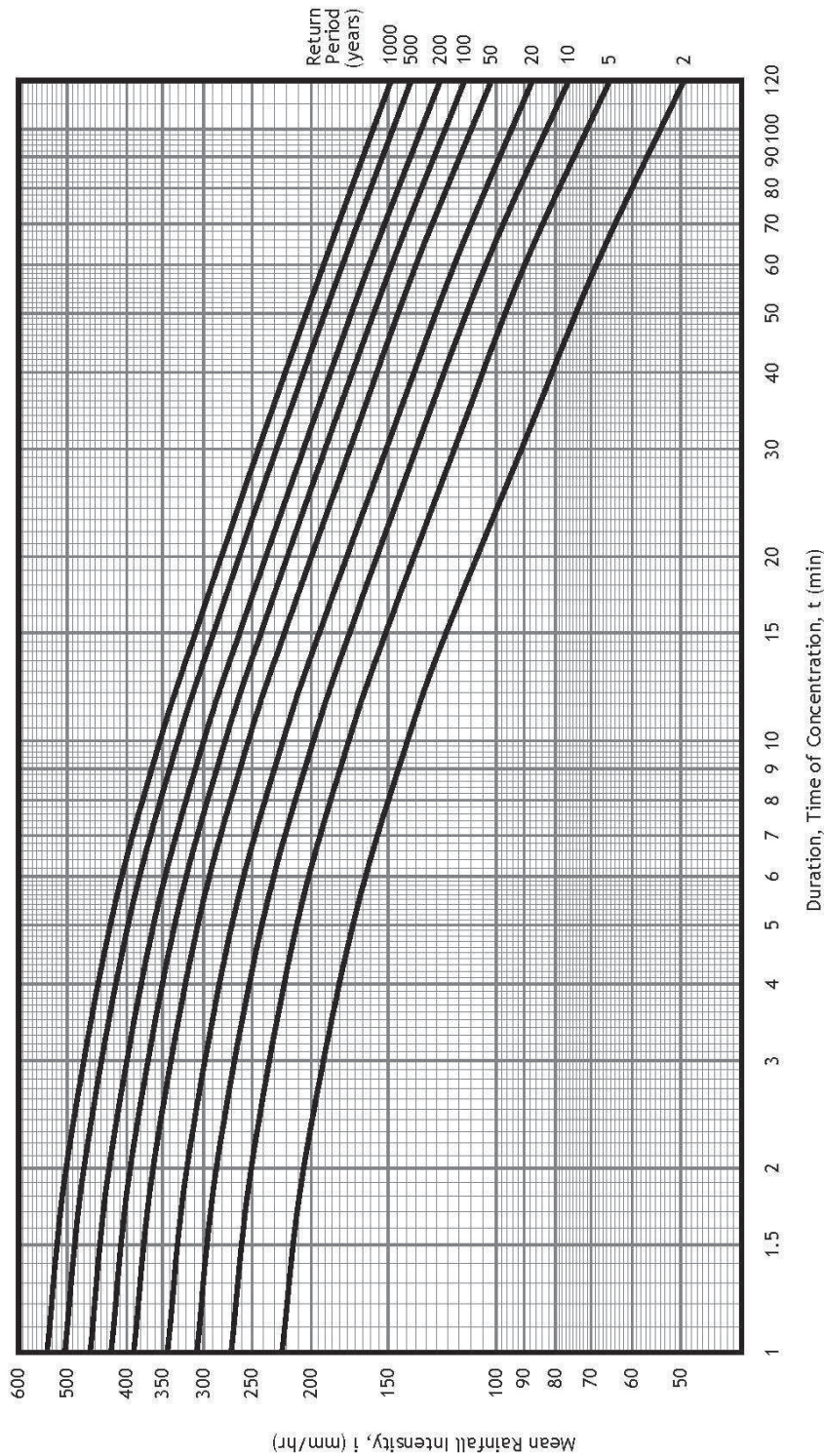


Figure 1 – New Intensity-Duration-Frequency (IDF) Curves (Tang & Cheung, 2011)

Note: These IDF curves are to supersede those given in Figure 8.2 of the Geotechnical Manual for Slopes (GCO, 1984).

**Geotechnical Engineering Office, Civil Engineering and Development Department
The Government of the Hong Kong Special Administrative Region**

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